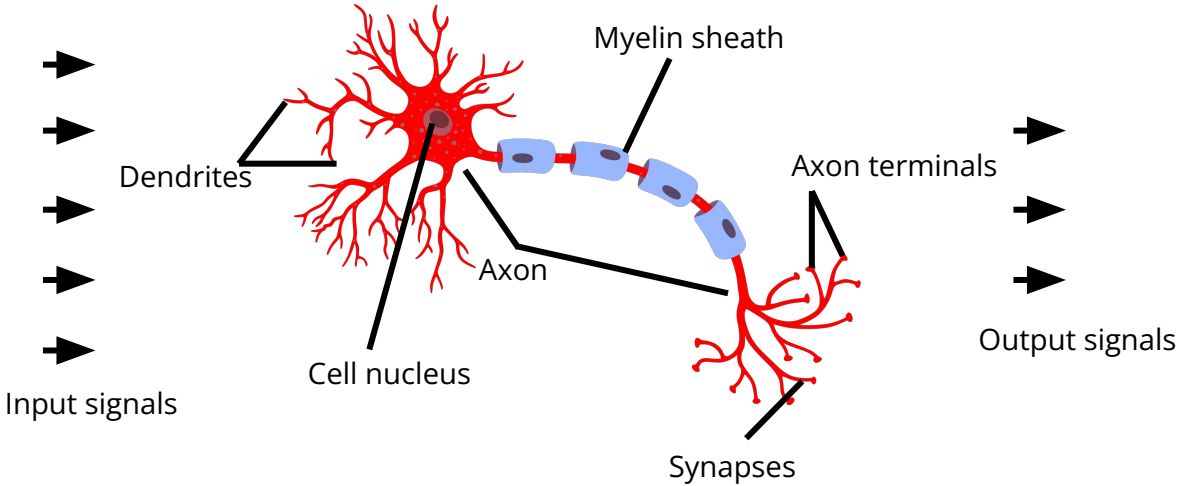
Biological Neurons

Neurons are interconnected nerve cells that build the nervous system and transmit information throughout the body.

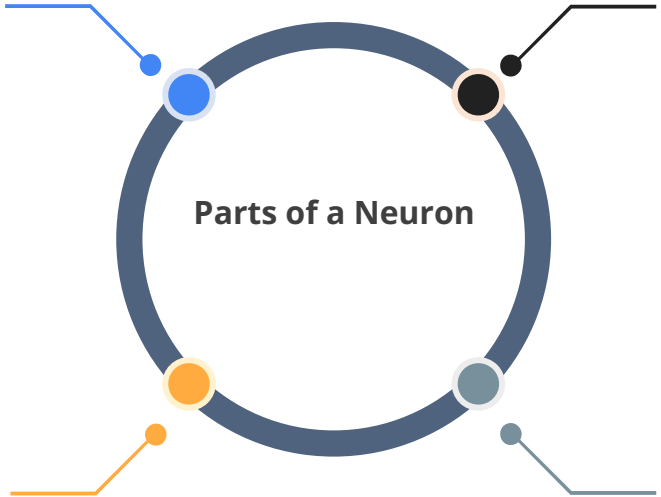


Biological Neurons: A Simplified Illustration

The components of the biological neuron network are as follows:

Dendrites receive inputs from other neurons.

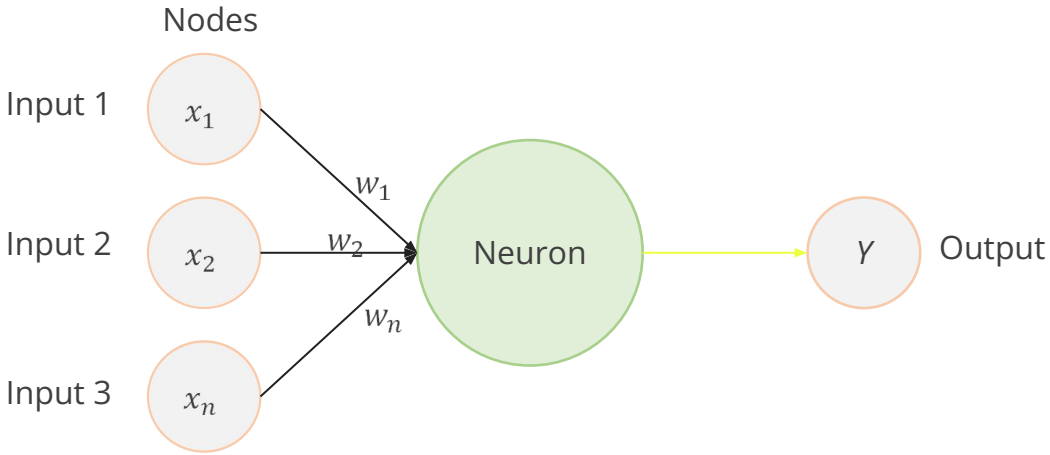
The **cell** nucleus is used for information processing.



Axons transmit the biological neuron's output.

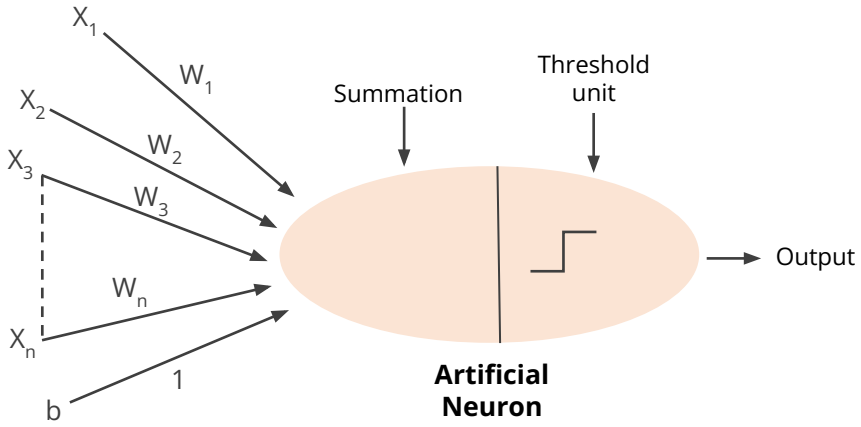
Synapse is the connection between two nerve cells.

Definition of Artificial Neuron



An artificial neuron is analogous to biological neurons, where each neuron takes inputs, adds weights to them separately, sums them up, and passes this sum through a transfer function to produce a nonlinear output.

Artificial Neurons



W_1, W_2, ... W_n - Weights of connection

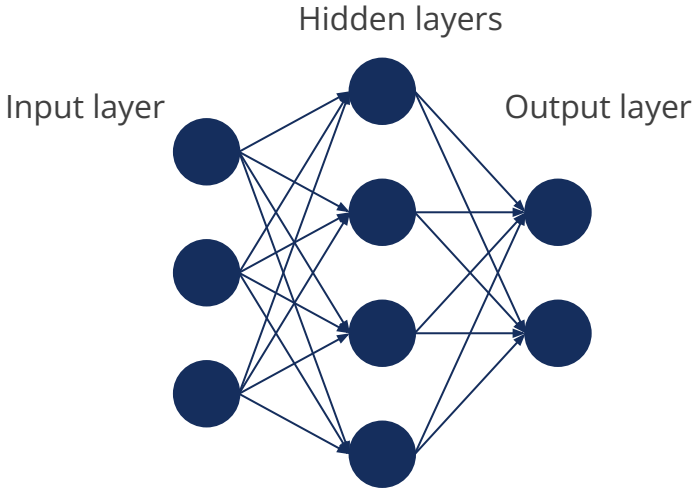
X_1, X_2, ... X_n, - Inputs

b - Bias

- A nerve cell is a simple logic gate with binary outputs.
- Dendrites can process the input signal with a certain threshold, such that if the signal exceeds the threshold, the output signal is generated.

Neural Networks

Neural networks consist of interconnected computation modules that simulate the behavior of biological neurons.



Each neural network consists of multiple node layers such as:

- Input layers
- One or more hidden layers
- Output layers